

PATENT  
USA.349**Amendments to the Claims:**

Claims 1-8 (canceled):

Claim 9 (currently amended): A material feed and waste system for a solid freeform fabrication apparatus used to form a three-dimensional object, the system comprising:

means for delivering at least one container to a queue station, the container holding a discrete amount of at least a build material;  
removing said discrete amount of material from said container for delivery to said dispensing device.

means for delivering at least a build material to at least one dispensing device;  
means for dispensing said discrete amount of material by said dispensing device in a layerwise fashion to form via a plurality of layers a three-dimensional object;  
means for normalizing the layers of the three-dimensional object wherein waste material is produced;

means for depositing said waste material in a waste receptacle, wherein said means for depositing said waste material comprises:

- a. a waste material line means for transporting collecting said waste material in to collect said waste material in an intermediate vessel, said intermediate vessel including a sealable bottom drain and a sealable atmospheric vent; and
- b. ~~means for releasing from said intermediate vessel to said waste receptacle said collected waste material~~ a level sensor in the intermediate vessel to sense when a pre-set amount of said waste material has been collected in the intermediate vessel in preparation for releasing from said intermediate vessel to said waste receptacle a measured amount of the collected waste material; and
- c. ~~means for repeating said collecting and releasing means until three-dimensional object is formed.~~

Claim 10 (currently amended): The apparatus of claim 9 wherein said intermediate vessel further comprises:

PATENT  
USA.349

- a. an open inlet port connected to the waste material line feeding the intermediate vessel;
- b. an actuator connected to the sealable bottom drain and the sealable atmospheric vent; and
- c. ~~b. a~~ the level sensor set to activate activating at a pre-set sensed level the actuator.
- e. ~~a sealable bottom drain; and~~
- d. ~~a sealable atmospheric vent.~~

Claim 11 (currently amended): The apparatus of claim 10 wherein ~~said means for collecting said waste material in said intermediate vessel comprises an~~ the actuator is movable for simultaneously sealing said sealable bottom drain and opening said sealable atmospheric vent to allow said intermediate vessel to fill through said open inlet port.

Claim 12 (currently amended): The apparatus of claim 11 wherein ~~said means for releasing said collected waste material from said intermediate vessel comprises an~~ the actuator is movable for simultaneously sealing said sealable atmospheric vent and opening said sealable bottom drain when said level sensor activates at said pre-set level to ~~release allow~~ said collected waste material to drain from said intermediate vessel to said waste receptacle.

Claim 13 (original): The system of claim 9 further comprising means for curing said waste material after said waste material is delivered to said waste receptacle.

Claim 14 (original): The system of claim 13 wherein the means for curing said waste material cures said waste material by exposure to actinic radiation or thermal energy.

Claim 15 (original): The system of claim 9 further comprises means for delivering at least one container to a queue station, the container holding a discrete amount of at least said

PATENT  
USA 349

build material; and

means for removing said discrete amount of at least said build material from said container.

Claim 16 (currently amended): A solid freeform fabrication apparatus for forming a three-dimensional object in a layerwise fashion by dispensing at least one material, the apparatus comprising:

a build environment having a build platform for supporting the three-dimensional object while it is being formed;

at least one dispensing device adjacent said build platform for dispensing said material to form layers of the three-dimensional object;

a motion means for respectively moving said dispensing device and said build platform with respect to each other;

means for normalizing the layers of said dispensed material thereby producing waste material;

a computer controller for receiving object data descriptive of the three-dimensional object and for processing the data and controlling the apparatus when forming the three-dimensional object; and

a material delivery and waste removal means for receiving and delivering said at least one material to said dispensing device and depositing said waste material in a waste receptacle, wherein said waste removal means includes means for depositing said waste material comprising:

- a. a waste material line means for transporting ~~collecting~~ said waste material to collect said waste material in an intermediate vessel, said intermediate vessel including a sealable bottom drain and a sealable atmospheric vent; and
- b. ~~means for releasing from said intermediate vessel to said waste receptacle said collected waste material~~ a level sensor in the intermediate vessel to sense when a

PATENT  
USA.349

pre-set amount of said waste material has been collected in the intermediate vessel in preparation for releasing from said intermediate vessel to said waste receptacle a measured amount of the collected waste material; and  
~~e. means for repeating said collecting and releasing steps until the three-dimensional object is formed.~~

Claim 17 (currently amended): The apparatus of claim 16 wherein said intermediate vessel further comprises:

- a). an open inlet port connected to the waste material line feeding the intermediate vessel;
- b). an actuator connected to the sealable bottom drain and the sealable atmospheric vent; and
- ~~c). b. a~~ the level sensor set to activate activating at a pre-set sensed level the actuator;
- ~~c) a sealable bottom drain; and~~
- ~~d) a sealable atmospheric vent.~~

Claim ~~17~~ 18 (currently amended): The apparatus of claim 17 wherein ~~said means for collecting said waste material in said intermediate vessel comprises an~~ the actuator is movable for simultaneously sealing said sealable bottom drain and opening said sealable atmospheric vent to allow said intermediate vessel to fill through said inlet port.

Claim 19 (currently amended): The apparatus of claim 18 wherein ~~said means for releasing said collected waste material from said intermediate vessel comprises an~~ the actuator is movable for simultaneously sealing said sealable atmospheric vent and opening said sealable bottom drain when said level sensor activates at said pre-set level to release ~~allow~~ said collected waste material to drain from said intermediate vessel to said waste receptacle.

PATENT  
USA.349

Claim 20 (original): The material and waste removal means according to claim 16 further comprising:

- a. means for receiving at least one container, the container holding a discrete amount of said at least one material; and
- b. means for removing said discrete amount of said at least one material from the container.

Claim 21 (currently amended): The apparatus of claim 20 further comprising means for ejecting said container when substantially all of the material in the container have has been removed.

Claim 22 (original): The apparatus of claim 16 further comprising a waste curing means for curing said waste material after said waste material is deposited in said waste receptacle, said waste material being cured by exposure to actinic radiation or thermal energy.

Claim 23 (original): The apparatus of claim 16 wherein said dispensing device dispenses a build material to form the three-dimensional object and a support material for forming support for the three-dimensional object.

Claim 24 (original): The apparatus of claim 16 having two dispensing devices, one dispensing device dispensing a build material to form the three-dimensional object, and the other dispensing device dispensing a support material to form support for the three-dimensional object.

Claim 25 (new): The apparatus of claim 12 further comprising the draining of waste material from the intermediate vessel creating a negative pressure effective to pull

PATENT  
USA.349

residual waste material from the waste material line to drain through the intermediate vessel to the waste receptacle.

Claim 26 (new): The apparatus of claim 19 further comprising the draining of waste material from the intermediate vessel creating a negative pressure effective to pull residual waste material from the waste material line to drain through the intermediate vessel to the waste receptacle.